Buyers Guide

Research & Development

Choosing the right water purification system for scientific research.



VEOLIA

Choosing the right water purification system for scientific research

Water is the reagent of choice for researchers working in many scientific disciplines. In fact, the average laboratory uses around 35 million liters of water every year for research, analysis and processing purposes.

Your lab likely sources water from a mains supply, but contaminants and impurities can compromise the integrity of your results. Insufficiently pure water can adversely affect samples and reagents, and even damage equipment. Such interference in your lab work can distract you from your primary objective - scientific discovery.

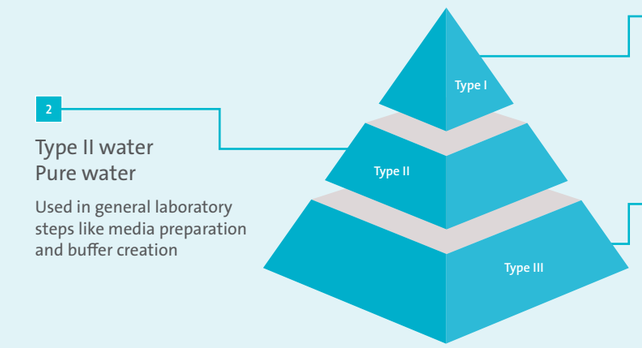
Here are the main questions you should ask yourself when choosing the right water purification system for your laboratory:

1	What water purity do I require?
2	How much water do I require and how many users or applications require purified water?
3	How critical is the purity of my water?
4	What is the quality of my feedwater?
5	How much space can I spare for my water purification system?
6	Are my water purification requirements likely to grow?
7	How can the new equipment contribute to the environmental sustainability credentials of my laboratory operations?
8	What would be the scope and cost associated with obtaining poor results due to choosing a poor quality water generation system?



The following will guide your answers to these questions, but for further information, take a look at the resources available on the ELGA website, or speak directly to a member of the ELGA team.

1. Water Purity



	Type III	Type II	Type II+	Type I	Type I+
Inorganics (resistivity at 25 °C)	>0.05 MΩ.cm	>1 MΩ.cm	>10 MΩ.cm	>18 MΩ.cm	18.2 MΩ.cm
Total organic carbon (TOC)	<200 ppb	<50 ppb	<50 ppb	<10 ppb	<5 ppb
Bacteria	<1000 CFU/ml	<100 CFU/ml	<10 CFU/ml	<1 CFU/ml	<1 CFU/ml
Endotoxin	-	-	-	<0.03 EU/ml	<0.03 EU/ml
Applications	Non-critical work Glassware rinsing Water baths Autoclave and disinfector feeds Environmental chambers To feed Type 1/1+ systems	General laboratory applications Preparing media, pH solutions and buffers		Water-critical applications Mobile phase and blanks preparation and sample dilution for e.g.: HPLC GC AAS ICP-MS Molecular and microbiological applications	

2. Water Volume Requirements

What is your daily purified water consumption? What is the peak flow rate of purified water you require? What size reservoir might you require to provide this volume of water?	Storage reservoirs should be equipped with a composite vent filter (CVF) to protect stored water from airborne CO_2 and bacteria, guaranteeing a supply of purified water in sufficient volumes when required to ensure laboratory productivity. Stored water should be regularly recirculated through the purification process to prevent deterioration in purity.
Do you require several dispensing points to deliver water for multiple uses? Do you require flexible dispensers that cater to your team and your laboratory? What different applications require purified water in your laboratory?	Different applications may require different purity water at different locations within your facility. See Q1. You might be able to feed multiple applications with different water purity requirements through engineering dispense points into your comprehensive water purification system. Be sure to provide all of your requirements to your provider to ensure they can create a bespoke solution for your laboratory in the most cost effective manner.

3. Importance of water purity

Do you need water purity monitored in real time right up to the point of use?	For applications that are sensitive to ionic contaminants, it is essential to monitor water resistivity to ensure water of adequate purity is used. Likewise, if experiments could be affected by organic contaminants, you may want to rely on a system that monitors total organic content (TOC). Many monitoring approaches have significant delays inherent to the method meaning values displayed are only relevant to water quality several minutes ago.

Do you require alerts when components are nearing the end of their life cycle to minimize disruption to laboratory processes?

Do you require a water purification system with enhanced DI technologies, such as EDI or PureSure DI technology, to prevent unexpected drops in water purity?

Do you require efficient service provision to maximise the uptime of your water purification system?

4. Feedwater quality

Do you know the quality of your feedwater? Do you need this to be tested to allow you to choose the appropriate water purification system and any requisite pre-treatment?	Prefiltration can be required to deal with a number of impurities that can be found in municipal water, protecting purification technologies and mechanical parts of the water purification system from damage. ELGA's technical team can test your feedwater for you, ensuring that your water purification system can work at optimal efficiency.

What is the pressure of your feedwater? Might you require a system with a boost pump?

5. Footprint

How much space do you have on or under the bench or on the wall to situate your water purification system?

Do you require a compact, low-volume system with a built-in wrap-around reservoir?

Do you require a larger system with external reservoir for high volumes of water that you can situate under the bench with remote dispensers on the bench?

6. Scalability & Future Planning

Might you require additional capacity without extensively increasing the footprint of your water purification system in the future?

7. Sustainability

Do you want to minimise the water and energy consumption of your laboratory?

Do you have internal or external environmental targets to achieve?

Do you want to reduce plastic use and chemical waste?

8. Budget

Do you want a reliable pure water generator with the lowest total cost of ownership, and predictable operational costs, without forgoing product quality?

Do you want a reliable and helpful global service network, to maximise the up-time and efficiency of your water purification system, and minimise potential costly disruptions?

Choosing the right water purification system is crucial for your laboratory to boost your research results. The wrong system can result in lengthy and costly downtime, including extensive cleaning and replacing of parts, as well as reagent wastage and unforeseen expenditure in the long run. In contrast, the right water purification system will improve the productivity, efficiency and accuracy of your lab's workflows.

ELGA LabWater: Dedicated to Discovery

ELGA has been working with scientists since 1937 to guarantee pure and ultrapure water for their experiments and laboratory work. We designed the PURELAB® product range to meet any one of your requirements for water quality, giving you peace of mind that your water purity is in good hands.

What can you expect from ELGA?

Absolute focus on water purification

The quality of ELGA water is guaranteed to the very last drop, so you can be confident you are receiving consistent optimum water purity.

Proven efficacy

ELGA is a trusted name and supplier with proven efficacy in helping to progress a wide range of scientific disciplines worldwide.

Smart and simple design

ELGA water purification systems fit seamlessly into the lab without taking up valuable bench space.

Ease of use and simplicity

Minimal training is required to quickly get your teams using ELGA products efficiently. Ease of use also minimizes the risk of user error.

Equipment that is easy to self-maintain

Any minor issues can be resolved quickly, without interruptions to your workflow.

Maximal uptime

ELGA's global service network ensures your water purification system operates at maximum efficiency.

Access to a global network of water experts

ELGA is part of Veolia, the largest environmental management agency in the world.



The PURELAB® Range



PURELAB® Quest (essential range)

- An all-in-one system that completes the full purification process to the required water specification
- Type I to III water quality options
- Designed for small laboratories with low water usage
- Up to 1.2 l/min dispense flow rate
- Most suitable for labs that do not have a ring main and need pure water for only one point of use
- Multiple quality sensors to constantly monitor ultrapure and pure water
- Compact design to optimize valuable lab space
- In-built auto-recirculation to manage biofilm, ensuring reliable water quality and optimal readings
- Simple to use (plug-and-play installation and quick maintenance)



PURELAB® Flex (mid-tier range)

- Provides a reliable supply of Type 1 water, from pre-purified or potable water feeds
- Designed for small laboratories with low to mid water usage.
- Up to 2.0 l/min dispense flow rate
- Space saving, compact and flexible dispenser which can be placed on the bench or wall mounted
- Real-time TOC monitoring
- 'Eco-mode' coupled with RO module reduces energy consumption by up to 55%
- Made from up to 70% reclaimed materials
- Simple to use (plug-and-play installation and quick maintenance)

PURELAB® Flex 1	Designed as a dispensing and monitoring system when connected to a reservoir or distribution loop. Also works as a simple DI system.
PURELAB® Flex 2	Produces ultrapure water from a pre-purified feed, which is ideal for analytical and life science applications.
PURELAB® Flex 3	Produces ultrapure water from potable tap water in a single unit.
PURELAB® Flex 3+	Produces ultrapure water from potable tap water in a single unit, coupled directly with analytical chemistry systems.

The PURELAB® Range



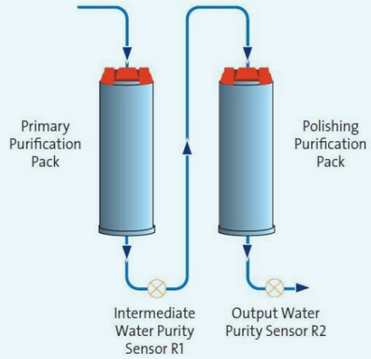
PURELAB® Chorus (premium tier range)

Consistently delivers Type I+ or Type I water

- Type I+ to Type III water quality options
- Designed for small laboratories with relatively high water usage
- Provides up to 120 l/h of purified water
- PureSure® technology for optimal water purity
- Modular, configurable design to optimize valuable lab space
- Range of dispensing solutions, reservoir sizes and purification packs
- In-built auto-recirculation to manage biofilm, ensuring reliable water quality and optimal readings
- Real-time TOC monitoring
- Intuitive menu navigation to minimize the risk of error

PURELAB® Chorus 1 Complete	Delivers ultrapure water from a potable tap water supply. Ideal for laboratories needing up to 480 liters / day of Type I ultrapure water.	
PURELAB® Chorus 1	Consistently delivers Type I+ or Type I ultrapure water. Underpinned by PureSure® deionization technology, and integrated filtration with automatic recirculation.	Combine PURELAB® Chorus products to form a complete water purification system: • Up to 4 dispensers can be connected to each polisher (Chorus 1) • Chorus 2 and 3 can be used to supply feed water for a Chorus 1, with up to 4 Chorus 2 or 3 combined to increase flow to a single reservoir • Chorus 2 provides Type II pure water directly from a potable tap water supply • Chorus 3 provides Type III primary grade water for glassware washing or general laboratory applications • 4 different reservoir sizes (15 L, 30 L, 60 L and 100 L), and the ability to connect to 3rd party reservoirs with service engineering support
PURELAB® Chorus 2	Dispenses up to 480 l/day of pure (Type II) water from a potable water supply for general laboratory applications.	
PURELAB® Chorus 2+	Features ELGA's patented recirculating EDI technology. Provides additional filtration of bacteria and inorganics for sensitive analytical and life science applications above that of basic laboratory work.	
PURELAB® Chorus 3	Produces general laboratory grade water with the flexibility to suit your requirements. Can also be used as a feed to other ELGA water systems.	

Additions to the PURELAB® Range



PURESURE® TECHNOLOGY

PureSure® technology consists of a double purification pack and monitoring system, using an enhanced DI process that relies on ion exchange (IX) resins to guarantee water quality.
The technology will provide advance warning when the first DI pack has been fully exhausted. When this occurs, the second DI pack ensures that water continues to meet the required specification. This allows the laboratory to replace the DI pack at a convenient time, without interrupting its workflow, causing downtime. The second DI pack can then be moved to the position of the first DI pack to maximise its use, avoiding the premature exchange of packs, wasting valuable resource.

WATER PURITY MONITORING

ELGA PURELAB® systems monitor water purity as close to the dispense point as possible, after all major purification technologies. Monitors are also located as part of the recirculation loop ensuring they are kept clean and will respond rapidly when water is dispensed.



PURELAB® DISPENSERS

Halo dispensers are required for Chorus 1 units. They are available in standard, advanced and flexible options, and can be bolted onto units or wall mounted. Remote dispensers are additional free-standing dispensing options with in-built monitors to provide maximum reassurance of water quality.



PURELAB® POINT OF USE FILTERS

Sub-micron filters can be fitted to most ELGA PURELAB® systems for applications that require very low bacterial or endotoxin specifications. However, ELGA systems do not rely on these for water purity, as they can represent a significant unknown and risk to the purity of the water dispensed, due to being located after water purity monitoring.

Resourcing the world VEOLIA

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